

## REMARKS

### I. CLAIMS

Claims 1-7 and 9-13 are pending. Claims 1, 2, 4, 7, 9 and 12-13 have been amended. Claim 8 has been cancelled without prejudice.

In claims 1, 2, 4, 12 and 13, the phrase “real storage areas” is replaced with the phrase “real volumes” and the phrase “virtual storage area” is replaced with the phrase “virtual volume” in accordance with support provided in the specification originally filed (at page 6, lines 8-12) reciting in relevant part:

The mapping information includes a relationship between the sectors of the real volumes (real storage areas) and the sectors of the virtual volumes (virtual storage areas), and information for specifying virtualized-information management apparatuses that manage the virtual volumes. [(Emphasis added.)]

The foregoing text quoted from the specification originally filed indicates that (1) the phrase “real volumes” is used synonymously with the phrase “real storage areas” and (2) the phrase “virtual volumes” is used synonymously with the phrase “virtual storage areas”. As such, the foregoing noted amendments to claims 1, 2, 4, 12 and 13 regarding the above-noted phrases are fully supported by the specification originally filed.

Consistent with the above, the specification has been further amended in similar manner (at page 1) to reiterate that the phrase “real volume(s)” is used synonymously with the phrase “real storage areas” and allowing for the use of the singular phrase “real volume” to refer to “real storage area” and for the use of the plural phrase “real volumes” to refer to “real storage areas” by the use of the parenthetical “(s)” in the above-noted phrases. The same/similar relationship applies to the phrase “virtual volume(s)” as it relates to the phrases “virtual storage area” and “virtual storage areas.”

Additionally, claim 7 has been amended to replace the phrase “real storage area” with the phrase “real volume” consistent with the above-noted support in the specification originally filed.

Claim 9 has been amended to depend from claim 1 instead of from claim 8 in view of the cancellation of claim 8 to maintain proper claim dependency.

Moreover, claim 1 has been additionally amended to further recite:

a building unit that accepts specifying of a necessary capacity of the virtual volume, selects the real volumes connected to networks

based on a predetermined priority sequence of the networks until a total free capacity of the real volumes selected reaches the necessary capacity, and builds a new virtual volume by virtually integrating the real volumes selected;

wherein the updating unit further updates the corresponding information based on corresponding information of the new virtual volume. [(Amended claim 1; emphasis added.)]

Support the foregoing amendment to claim 1 is found in original claim 8 (now cancelled) and in Figure 7 and its description in the specification (from page 26, line 20 to page 29, line 5).

Lastly, claims 12 and 13 are additionally amended to further recite an “accepting” step, a “selecting” step, a “building” step, and an “updating” step consistent with the operation of the “building unit” and the “updating unit” recited in original claims 1 and 8. Additional support for these steps and units is found in Fig. 7 when taken in conjunction with Fig. 2 (and the remainder of the specification) and, more specifically, also in conjunction with the specification originally filed (from page 26, line 20 to page 29, line 5).

Accordingly, no new matter has been introduced.

## **II. OBJECTION TO DRAWINGS**

The Office Action has objected to the drawing figures for the reasons noted at pages 2-3 thereof. In particular, the Office Action asserts that “[t]he drawings must show every feature . . . in the claims” with regard to the “virtual storage area” as described in therein. See the preamble and body of claims 1, 12 and 13.

In response, Applicants have amended the claims to recite “virtual volume” in place of “virtual storage area” and to recite “real volumes” in place of “real storage areas” as noted above. Furthermore, one of ordinary skill in the art would have understood that the above-noted phrases to have been synonymously used based on a reading of the specification originally filed.

Moreover, Figures 1 and 8 depict “real volumes” 11a, 11b, 11c and 11d together with “virtual volumes” 12a and 12b. Also, “integrating” these components is described throughout the specification originally filed as well as in original claim 1. See also specification originally filed (from page 33, line 19 to page 34, line 4; page 3, lines 3-14; from page 3, line 25 to page 4, line 6; from page 4, line 25 to page 5, line 1 relating to Figure 7; and the remainder of the specification originally filed).

Note that with reference to Figure 7, the specification originally filed (from page 4, line 25 to page 5, line 1) indicates in relevant part that “Fig. 7 is a flowchart of a virtual-volume building procedure by a virtual volume building unit 244”. When Fig. 7 is considered together with the

detailed description thereof in the specification (from page 26, line 20 to page 29, line 5), Applicants respectfully submit that the drawings illustrate the feature of amended claims 1, 12 and 13 reciting “a virtual volume built by virtually integrating the real volumes” (in the preamble and/or body of claims 1, 12 and 13) as noted above. (Emphasis added.)

In view of the above, Applicants respectfully submit that the drawings originally filed satisfy the requirements of 37 C.F.R. § 1.83(a). Therefore, Applicants also respectfully request reconsideration and withdrawal of the objection to the drawings under 37 C.F.R. § 1.83(a).

### III. REJECTIONS UNDER 35 U.S.C. § 102(e)

Claims 1, 2, 4, 5, 7, 8 and 12-13 are rejected under 35 U.S.C. § 102(e) as being anticipated by U.S. Pub. No. 2003/0229645 to Mogi et al. (hereinafter “Mogi”) for the reasons noted at pages 3-5 of the Office Action. Applicants respectfully traverse this rejection for the reasons noted below.

#### Claims 1, 2, 4, 5, 7 and 8

As noted herein, claim 8 has been cancelled. Thus, Applicants’ remarks will address the rejection of the pending claims rejected under 35 U.S.C. § 102(e) over Mogi.

In particular, claim 1 is amended to further recite a “building unit” which operates (1) to “accept[] specifying of a necessary capacity of a virtual volume”, (2) to “select[] the real volumes . . . based on . . . a predetermined priority sequence . . . until a total free capacity of the real volumes selected reaches the necessary capacity”, and (3) to “build a new virtual volume by virtually integrating the real volumes selected” as noted in the **Listing of the Claims** herein. (Emphasis added.)]

Also, claim 1 (as amended) recites that the “updating unit” is operated to “further update[] the corresponding information based on corresponding information of the new virtual volume” built by the “building unit” also as noted in the **Listing of the Claims** herein. (Emphasis added.)]

Based on the specific paragraphs [0014], [0059], [0163] and [0173] relating to Figs. 7-8 (of Mogi) cited in the Office Action (from page 3, line 20 to page 4, line 2 and page 5, lines 1-4) in support of the rejection of claims 1 and 8, Mogi does not teach or disclose at least the “building unit” (with its associated features including “selecting real volumes based on a predetermined priority sequence . . . until . . . .”) of amended independent claim 1, from which claims 2, 4, 5 and 7 ultimately depend.

Also, the disclosure at paragraphs [0177] and [0178] (of Mogi) relating to (a) if the specified region as a mapping destination is a disk drive, then (b) checking to see if the disk drive has a region in which effective data is not held and (c) which has a capacity enough to hold data being altered in data mapping – is not the same as the operation of the “building unit” used to “select[] real volumes based on a priority sequence . . . until . . .” recited in the rejected claims.

Accordingly, Applicants respectfully submit that claims 1, 2, 4, 5 and 7 (as amended) are patentably distinguished over the disclosure of Mogi. Thus, Applicants respectfully request reconsideration and withdrawal of the rejection of claims 1, 2, 4, 5 and 7 under 35 U.S.C. § 102(e) over the disclosure of Mogi.

### **Claims 12-13**

Moreover, independent claims 12 and claim 13 are amended to further recite (1) an “**accepting**” step to accept “specifying of a necessary capacity of the virtual volume”, (2) a “**selecting**” step to select “real volumes . . . based on a predetermined priority sequence . . . until a total free capacity of the real volumes . . . reaches the necessary capacity”, (3) a “**building**” step to build “a new virtual volume by virtually integrating the real volumes selected”, and (4) an “**updating**” step to update “the corresponding information . . . of the new virtual volume” as noted in the **Listing of the Claims** herein.

While Applicants reserve their right to disagree with the Office Actions’ assertions regarding the disclosures of Mogi, Applicants respectfully submit that all the (above-noted) steps (1) – (4) with their related features (including “selecting the real volumes . . . based on a predetermined priority sequence . . . until . . .” as recited in independent claims 12 and 13) are not taught or disclosed in cited paragraphs [0014], [0059], [0163] and [0173] relating to Figures 7-8 (of Mogi) as cited in the Office Action (from page 3, line 20 to page 4, line 2, and page 5, lines 1-4) in support of the rejection of claims 8, 12 and 13.

Also, the disclosure at paragraphs [0177] and [0178] (of Mogi) relating to (a) if the specified region as a mapping destination is a disk drive, then (b) checking to see if the disk drive has a region in which effective data is not held and (c) which has a capacity enough to hold data being altered in data mapping – is not the same as the operation of “selecting real volumes based on a priority sequence . . . until . . .” recited in the rejected claims.

Accordingly, Applicants respectfully submit that claims 12 and 13 (as amended) are patentably distinguished over the disclosure of Mogi. Thus, Applicants respectfully request

reconsideration and withdrawal of the rejection of claims 12 and 13 under 35 U.S.C. § 102(e) over the disclosure of Mogi.

**IV. REJECTION UNDER 35 U.S.C. § 102(b)**

Claims 1, 2, 4, 5, 7 and 12-13 are rejected under 35 U.S.C. § 102(b) as being anticipated by Japanese language Pub. No. 2000-267937 (hereinafter "JP '937") for the reasons noted at page 5 of the Office Action. Applicants respectfully traverse this rejection for the reasons noted below.

First, Applicants note that only the Abstract of JP '937 is available in English. Second, a reliable translation of the entire JP '937 reference has not been provided to Applicants. Therefore, the instant rejection is based solely on the English language Abstract of JP '937.

If, however, the Examiner wishes to rely on the entire disclosure of JP '937, the Examiner is invited to provide a reliable English translation of the entire JP '937 publication and to provide Applicants a full and fair opportunity to respond by keeping prosecution open.

Nevertheless, while Applicants reserve their right to disagree with the Office Actions' assertions regarding the disclosures of JP '937, Applicants respectfully submit that the above-noted "building unit" (see section "III. REJECTIONS UNDER 35 U.S.C. § 102(e)" above) with its related features (recited in independent claim 1 and in claims 2, 4, 5 and 7 ultimately depending therefrom) is not taught or disclosed by JP '937. (Emphasis added.)

Furthermore, Applicants respectfully submit that all the (above-noted) steps (1) – (4) of claims 12-13 (see section "III. REJECTIONS UNDER 35 U.S.C. § 102(e)" above) with their related features (recited in independent claims 12 and 13) also are not taught or disclosed by JP '937.

Thus, Applicants respectfully request reconsideration and withdrawal of the rejection of claims 1, 2, 4, 5, 7 and 12-13 under 35 U.S.C. § 102(b) over the disclosure of JP '937.

**V. REJECTION UNDER 35 U.S.C. § 103**

Claims 3, 6, 9 and 10-11 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Mogi in view of U.S. Pub. No. 2003/0229645 of Ganesan et al. (hereinafter "Ganesan") for the reasons noted on pages 5-6 of the Office Action. Applicants respectfully traverse this rejection for the reasons noted below.

In particular, with regard to dependent claims 3, 6, 9, 10 and 11 (ultimately depending from claim 1 – as amended), the Office Action asserts that "Mogi et al. discloses all limitations of

[the] invention recited in claims 1, 2, and 8 except for a capsulating unit and a decapsulating unit” as noted at page 6, lines 4-6, thereof. (Emphasis added.) The Office Action then asserts that Ganesan discloses the “capsulating unit” and the “decapsulating unit” recited in claim 6. The Office Action also asserts that Mogi discloses all the limitations of claim 5 except for the “data cache” of claim 6 and that Ganesan “discloses a data cache” as noted at page 6, lines 16-18 thereof.

Applicants respectfully reiterate (and apply) their above-noted remarks regarding the deficiencies of Mogi and incorporate those remarks herein without having to repeat the same. See section “III. **REJECTIONS UNDER 35 U.S.C. § 102(e)**” above. Also, Ganesan fails to rectify the above-noted deficiencies of Mogi for the further reasons noted below.

For example, rejected claims 3, 6, 9, and 10-11 recite the above-noted “**building unit**” of used to select “the real volumes based on a predetermined priority sequence . . . until a total free capacity of the real volumes selected reaches the necessary capacity, and builds a new virtual volume [accordingly]” (as recited in amended claim 1). Based on the specific paragraphs [0014], [0059], [0163] and [0173] relating to Figs. 7-8 (of Mogi) cited in the Office Action in support of the rejection of claims 1 and 8, Mogi does not teach or disclose at least the “building unit” (with its associated features including “selecting real volumes based on a predetermined priority sequence . . . until . . .”) of amended independent claim 1, from which claims 3, 6, 9, 10 and 11 ultimately depend. Likewise, Ganesan does not teach, disclose or suggest the above-noted “building unit” recited in rejected claims 3, 6, 9, 10 and 11.

Thus, the combination of Mogi in view of Ganesan does not teach, disclose or suggest the claimed invention of claims 3, 6, 9, 10 and 11. Also, even assuming *arguendo* (without admitting the same) that the various features expressly recited in dependent claims 3, 6, 9, 10 and 11 (and not recited in independent base claim 1) were disclosed by Ganesan, the combination of Mogi in view of Ganesan does not arrive at the claimed invention of claims 3, 6, 9, 10 and 11.

Accordingly, for at least these reasons, Applicants respectfully submit that claims 3, 6, 9, 10 and 11 are patentably unobvious over the disclosures of Mogi in view of Ganesan. As such, Applicants respectfully request reconsideration and withdrawal of the rejection of claims 3, 6, 9, 10 and 11 under 35 U.S.C. § 103(a) over Mogi in view of Ganesan.

VI. CONCLUSION

In view of the above, it is respectfully submitted that the application is in condition for allowance and a Notice of Allowance is earnestly solicited.

If any issues remain outstanding, the Examiner is respectfully requested to contact the undersigned attorney so that any remaining issues may be promptly resolved.

No additional fees (other than the two-month extension of time fee of \$450) are believed to be due for the filing of this paper. However, if any additional fees are due or any overpayment of fees has been made, please debit or credit our Deposit Account No. 19-3935, as necessary.

Respectfully submitted,

STAAS & HALSEY LLP

Date: February 28, 2007

By: 

Ajay Pathak

Registration No. 38,266

1201 New York Avenue, NW, 7th Floor  
Washington, D.C. 20005  
Direct: (202) 454-1594  
Telephone: (202) 434-1500  
Facsimile: (202) 434-1501

Enclosures:

Fee Transmittal  
Check